REMARKS

In the Office Action, dated March 26, 2004, the Examiner rejected claims 3-5, 7, 8, 10-13, 15-18 and 21-31 under 35 U.S.C. §102(e) as allegedly being anticipated by U. S. Patent No. 6,563,823 (hereinafter "PRZYGIENDA").

By way of this amendment, Applicant has amended claims 4, 10, 15, 24 and 29 to improve form. Claims 8, 12, 13, 25 and 31 have been canceled. New claims 32-34 have been added. No new matter has been added by way of the present amendment. Reconsideration of the outstanding rejection of pending claims 3-5, 7, 10, 11, 15-18, 21-24 and 26-30 is respectfully requested in view of the amendments above and the following remarks.

At the outset, Applicant notes that an initialed copy of the form PTO-1449, that accompanied the information disclosure statement filed on September 5, 2003, has not been received from the Office. Applicant respectfully requests that an initialed copy of this form PTO-1449 be returned to Applicant along with any subsequent communication.

In paragraph 3, the Office Action rejects pending claims 3-5, 7, 10, 11, 15-18, 21-24 and 26-30 under 35 U.S.C. §102(e) as allegedly being anticipated by PRZYGIENDA. Applicant respectfully traverses.

Amended independent claim 4, for example, recites a method that includes "receiving header data of a network layer packet," "selecting a first one of the storage locations based on a first set of bits contained in the header data," "executing an instruction stored at the first selected storage location," "selecting a second one of the storage locations based on the executed instruction and a second set of bits contained in the header data" and "selecting a

10

third one of the storage locations based on contents of the second selected storage location and a third set of bits contained in the header data."

A proper rejection under 35 U.S.C. §102(e) requires that a single reference teach every aspect of the claimed invention either expressly or impliedly. Any feature not directly taught must be inherently present. See M.P.E.P. § 2131. Applicant respectfully submits that PRZYGIENDA does not suggest or disclose the combination of features recited in amended claim 4.

For example, PRZYGIENDA does not suggest or disclose, among other features, "executing an instruction stored at the first selected storage location" and "selecting a second one of the storage locations based on the executed instruction and a second set of bits contained in the header data" as recited in claim 4. The Examiner relied on various portions of PRZYGIENDA for allegedly disclosing the features of claim 4, including column 2, lines 2-10, column 2, lines 55-64; column 2, lines 57-59; and column 3, lines 1-2.

At column 2, lines 2-10, PRZYGIENDA discloses:

> CIDR groups IP addresses together in a similar hierarchical pattern, with the leftmost bits of an IP address giving the location of a particular network, while the location of a network device or host becomes increasingly specific as the address reads to the rightmost bit. For example, a typical Internet address under the IP version 4 (IPv4) addressing scheme might be 1.1.1.2 in decimal form, which is represented in binary form as a sequence of 32 binary bits, i.e., 00000001.00000001.00000001.00000010.

This section of PRZYGIENDA merely discloses the use of Classless Interdomain Routing (CIDR) for assigning network addresses. This section of PRZYGIENDA, though, does not

disclose or suggest executing an instruction stored at a first selected storage location and

selecting a second storage location based on the executed instruction and a second set of bits

contained in header data, as recited in claim 4.

At column 2, line 55 – column 3, line 10, PRZYGIENDA discloses:

> The CIDR longest match rule can be better understood with reference to FIG. 1.
> FIG. 1 is a diagram for a logical representation of the longest match rule. A
> data packet is received by a forwarding device with an IP address of 124.13.7.5.
> The forwarding device uses a lookup algorithm to search for matching prefixes
> within a routing table 16. Routing table 16 contains prefixes with varying levels
> of granularity, with the meaningless bits represented by the letter "X". The
> search first uncovers the matching prefix 124.X.X.X (referred to as match
> preference three). Since the longest match rule requires that the entire routing
> table be searched for the longest prefix that matches the destination address, the
> forwarding device must continue searching routing table 16. The continued
> search uncovers a second match preference of 124.13.X.X. Since the address
> 124.13.7.5 more closely resembles 124.13.X.X, this match preference is more
> desirable the match preference three since it more specifically identifies a route
> for the packet. Finally, the search uncovers a first match preference of
> 124.13.7.X. Since this prefix is the closest match to the address 124.13.7.5 in
> routing table 16, the forwarding device will use the forwarding information
> associated with this prefix to route the packet to its next destination.

This section of PRZYGIENDA discloses the use of CIDR "longest matching" in which a

lookup algorithm searches through a routing table 16 to find a longest prefix that matches a

destination address retrieved from a data packet. This section of PRZYGIENDA, however,

does not disclose or suggest executing an instruction stored at a first selected storage location

and selecting a second storage location based on the executed instruction and a second set of

bits contained in header data, as recited in claim 4.

On page 3, the Office Action alleges that PRZYGIENDA inherently discloses an algorithm for the longest match rule that "requires further search if the prefix of the first location "3" isn't a longest prefix." Applicant submits, however, that an algorithm that requires further search if the prefix isn't a longest prefix does not disclose, or even suggest, the execution of an instruction stored at the routing table 16 shown in FIG. 1. The CIDR longest match rule of PRZYGIENDA does not disclose or suggest the execution of any instructions stored at the routing table 16 and, thus, does not disclose "selecting a first one of the storage locations based on a first set of bits contained in the header data," "*executing an instruction stored at the first selected storage location*" and "selecting a second one of the storage locations based on the executed instruction and a second set of bits contained in the header data," as recited in amended claim 4.

For at least the foregoing reasons, Applicant submits that amended claim 4 is not anticipated by PRZYGIENDA.

Claims 3 and 5 depend from claim 4. These claims, therefore, are not anticipated by PRZYGIENDA for at least the reasons set forth above with respect to claim 4.

Amended independent claim 10 recites, among other features, "using a first set of bits from the destination address of the IP packet as an index to locate a first entry in a first forwarding lookup that stores a first instruction and a first set of bits" and "executing the first instruction to, using the first set of bits, provide direction to a second forwarding lookup, using a second set of bits from the destination address as an index to locate a second entry in a

13

second forwarding lookup that stores a second instruction and a second set of bits." As discussed above, PRZYGIENDA merely discloses the use of CIDR "longest matching" for searching through a routing table 16 to find a longest prefix that matches a destination address retrieved from a data packet. As further discussed above, PRZYGIENDA does not disclose the execution of any instructions stored at the routing table 16 shown in FIG. 1. PRZYGIENDA, therefore, does not suggest or disclose, among other features, "a first entry in a first forwarding lookup that stores a first instruction and a first set of bits" and "executing the first instruction to, using the first set of bits, provide direction to a second forwarding lookup," as recited in amended claim 10. Withdrawal of the rejection of claim 10 is, therefore, respectfully requested for at least this reason.

Claim 7 depends from claim 10 and, therefore, is not anticipated by PRZYGIENDA for at least the reasons set forth above with respect to claim 10.

Amended independent claim 15 recites, among other features, "a first lookup structure storing entries that further store instructions regarding forwarding of network layer packets, said entries being indexed by multiple bits," "a second lookup structure storing entries that further store instructions regarding forwarding of network layer packets, said entries being indexed by multiple bits," "a third lookup structure storing entries that further store instructions regarding the forwarding of network layer packets, said entries being indexed by multiple bits," "executing the instruction stored at the located entry in the first lookup structure, for using a second set of bits from the header data of each received packet to locate

14

an entry in the second lookup structure," and "executing the instruction stored at the located entry in the second lookup structure and for using a third set of bits from the header data of each received packet as an index to locate an entry in the third lookup structure and for executing the instruction stored at the located entry in the third lookup structure." As discussed above, PRZYGIENDA merely discloses the use of CIDR "longest matching" for searching through a routing table 16 to find a longest prefix that matches a destination address retrieved from a data packet. PRZYGIENDA does not disclose the execution of any instructions stored at the routing table 16 shown in FIG. 1. PRZYGIENDA, therefore, does not suggest or disclose, among other features, "executing the instruction stored at the located entry in the first lookup structure... " or "executing the instruction stored at the located entry in the second lookup structure..." as recited in amended claim 15. Withdrawal of the rejection of claim 15 is, therefore, respectfully requested.

Claims 16-18 depend from claim 15 and, therefore, are not anticipated by PRZYGIENDA for at least the reasons set forth above with respect to claim 15.

Independent claim 21 recites, among other features, "a first lookup array containing entries indexed by leading bits of destination addresses for IP packets, each entry containing an instruction to assist in forwarding an IP packet towards a destination," "a second lookup array containing entries indexed by a successive set of bits that follow the leading bits in the destination addresses for IP packets, each entry containing an instruction to assist in forwarding an IP packet towards a destination," "a third lookup array containing entries

15

indexed by a set of trailing bits that follow the successive set of bits in the destination addresses for IP packets, each entry containing an instruction to assist in forwarding an IP packet," and a forwarding engine that "accesses at least one entry in the lookup arrays indexed by a portion a destination address for the IP packet being forwarded and executing the instruction contained in the entry that is accessed." As discussed above, PRZYGIENDA merely discloses the use of CIDR "longest matching" for searching through a routing table 16 to find a longest prefix that matches a destination address retrieved from a data packet. PRZYGIENDA does not disclose the execution of any instructions contained in the routing table 16 shown in FIG. 1. PRZYGIENDA, therefore, does not suggest or disclose, among other features, "a first lookup array containing entries indexed by leading bits of destination addresses for IP packets, *each entry containing an instruction* to assist in forwarding an IP packet towards a destination" and accessing "at least one entry in the lookup arrays indexed by a portion a destination address for the IP packet being forwarded and *executing the instruction contained in the entry* that is accessed," as recited in claim 21. Withdrawal of the rejection of claim 21 is, therefore, respectfully requested.

Claims 22 and 23 depend from claim 21 and, therefore, are not anticipated by PRZYGIENDA for at least the reasons set forth above with respect to claim 21.

Amended independent claim 24 recites, among other features, "using a first set of multiple bits from header data for a network layer packet as an index to locate a selected first one of the storage locations that stores a first instruction," "executing the first instruction to

16

provide, using a second set of multiple bits from the header data, a location of a second one of

the storage locations that stores a second instruction," and "executing the second instruction to

provide, using a third set of multiple bits from the header data, a location of a third one of the

storage locations." As discussed above, PRZYGIENDA merely discloses the use of CIDR

"longest matching" for searching through a routing table 16 to find a longest prefix that

matches a destination address retrieved from a data packet. PRZYGIENDA does not disclose

the execution of any instructions stored at the routing table 16 shown in FIG. 1.

PRZYGIENDA, therefore, does not suggest or disclose, among other features, "a selected first

one of the storage locations that stores a first instruction" and "executing the first instruction to

provide, using a second set of multiple bits from the header data, a location of a second one of

the storage locations that stores a second instruction, as recited in amended claim 24.

Withdrawal of the rejection of claim 24 is, therefore, respectfully requested.

Claims 26-28 depend from claim 24 and, therefore, are not anticipated by

PRZYGIENDA for at least the reasons set forth above with respect to claim 24.

Amended independent claim 29 recites, among other features, "using a prefix of

multiple bits from the destination address of the IP packet as an index to locate a first entry in

the first forwarding lookup that stores a first instruction and a first set of bits," "executing the

first instruction to provide direction, using the first set of bits, to the second forwarding

lookup, using a next sequential set of bits following the prefix in the destination address as an

index to locate a second entry in the second forwarding lookup." As discussed above,

PRZYGIENDA merely discloses the use of CIDR "longest matching" for searching through a routing table 16 to find a longest prefix that matches a destination address retrieved from a data packet. PRZYGIENDA does not disclose the execution of any instructions stored at the routing table 16 shown in FIG. 1. PRZYGIENDA, therefore, does not suggest or disclose, among other features, "a first entry in the first forwarding lookup that stores a first instruction and a first set of bits" and "executing the first instruction to provide direction, using the first set of bits, to the second forwarding lookup," as recited in amended claim 29. Withdrawal of the rejection of claim 29 is, therefore, respectfully requested.
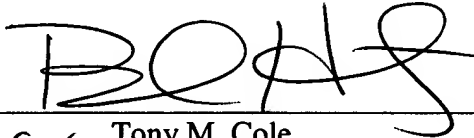
Claim 30 depends from claim 29 and, therefore, is not anticipated by PRZYGIENDA for at least the reasons set forth above with respect to claim 29.

New claims 32-34 depend from claim 4 and, therefore, patentably distinguish over PRZYGIENDA for at least the reasons set forth above with respect to claim 4. These claims include additional features not disclosed or suggested by PRZYGIENDA. For example, claim 32 recites the feature "retrieving, from a lookup element stored in a storage location of the storage locations, multiple bits that select that first set of bits from all of the bits contained in the header data" that is not suggested or disclosed by PRZYGIENDA. Additionally, claim 33 recites the feature "retrieving, from the first one of the storage locations, multiple bits that select the second set of bits from all of the bits contained in the header data" that is not suggested or disclosed by PRZYGIENDA. Furthermore, claim 34 recites the feature "retrieving, from the second one of the storage locations, multiple bits that select the third set

18

of bits from all of the bits contained in the header data" that is not suggested or disclosed by PRZYGIENDA.

In view of the foregoing amendments and remarks, Applicant respectfully requests the Examiner's reconsideration of this application, and the timely allowance of the pending claims. To the extent necessary, a petition for an extension of time under 37 CFR § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1070 and please credit any excess fees to such deposit account.

Respectfully submitted,

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